

AMENDMENTS TO THE CLAIMS:

Claim 1. (Currently amended) An in-plane switching type liquid crystal display unit comprising:

a pair of substrate structures comprising at least plural pixel electrodes and a common electrode on one of said substrate structures; and

a liquid crystal layer sandwiched between said substrate structures and having a splay elastic coefficient ~~selected to be~~ within the range expressed as:

6 pico-newton < said splay elastic coefficient < 25 pico-newton for improving a luminance of said in-plane switching type liquid crystal display unit.

Claim 2. (Original) The in-plane switching type liquid crystal display unit as set forth in claim 1, in which the liquid crystal of said liquid crystal layer has a positive anisotropy of dielectric constant.

Claim 3. (Previously presented) The in-plane switching type liquid crystal display unit as set forth in claim 1, in which said liquid crystal further has a bend elastic coefficient and a twist elastic coefficient, and said splay elastic coefficient, said bend elastic coefficient and said twist elastic coefficient satisfy an inequality expressed as:

$$0.5 < (\sqrt{K_{11} \times K_{33}} / K_{22}) < 2.0$$

where K_{11} is said splay elastic coefficient, K_{33} is said bend elastic coefficient and K_{22} is said twist elastic coefficient.

Claim 4. (Original) The in-plane switching type liquid crystal display unit as set forth in claim 1, in which said substrate structures are spaced from each other by a distance ranging from 1.0 micron to 6.0 microns.

Claim 5. (Previously presented) The in-plane switching type liquid crystal display unit as set forth in claim 1, in which an electric field is created between each of said plural pixel electrodes and a part of said common electrode under application of a potential difference therebetween, and each of said plural pixel electrodes is spaced from ~~and~~ said part of said common electrode in a direction parallel to inner surfaces of said substrate structures by a distance ranging from 2 microns to 15 microns.

Claim 6. (Original) The in-plane switching type liquid crystal display unit as set forth in claim 1, in which said substrate structures are spaced from each other by a first distance ranging from 1.0 micron to 6.0 microns, and each of said plural pixel electrodes and an associated part of said common electrode is spaced from each other in a direction parallel to inner surfaces of said substrate structures by a second distance ranging from 2 microns to 15 microns.

Claim 7. (Original) The in-plane switching type liquid crystal display unit as set forth in claim 1, in which said plural pixel electrodes, parts of said common electrode respectively associated with said plural pixel electrodes and pieces of said liquid crystal layer respectively overlapped with combinations of said plural pixel electrodes and said parts form in combination

plural pixels arranged in a matrix.

Claim 8. (Original) The in-plane switching type liquid crystal display unit as set forth in claim 7, further comprising color filters selectively put in the primary three colors and contained in said plural pixels, respectively.

Claim 9. (Original) The in-plane switching type liquid crystal display unit as set forth in claim 8, in which said plural pixel electrodes and said common electrode are formed on said one of said substrate structures together with data lines and thin film transistors selectively connected between said data lines and said pixel electrodes, and said color filters are formed on the other of said substrate structures together with a black matrix.

Claim 10. (Currently amended) An in-plane switching type liquid crystal display unit comprising:

a pair of substrate structures comprising at least plural pixel electrodes and a common electrode on one of the substrate structures ~~thereof~~; and

a liquid crystal layer sandwiched between said substrate structures and having a bend elastic coefficient ~~selected to be~~ within the range expressed as:

5 pico-newton < said bend elastic coefficient < 20 pico-newton for improving a luminance of said in-plane switching type liquid crystal display unit.

Claim 11. (Original) The in-plane switching type liquid crystal display unit as set forth in claim 10, in which the liquid crystal of said liquid crystal layer has a positive anisotropy of dielectric constant.

Claim 12. (Previously presented) The in-plane switching type liquid crystal display unit as set forth in claim 10, in which said liquid crystal further has a splay elastic coefficient and a twist elastic coefficient, and said bend elastic coefficient, said splay elastic coefficient and said twist elastic coefficient satisfy an inequality expressed as:

$$0.5 < (\sqrt{K_{11} \times K_{33}} / K_{22}) < 2.0$$

where K_{11} is said splay elastic coefficient, K_{33} is said bend elastic coefficient and K_{22} is said twist elastic coefficient.

Claim 13. (Original) The in-plane switching type liquid crystal display unit as set forth in claim 10, in which said substrate structures are spaced from each other by a distance ranging from 1.0 micron to 6.0 microns.

Claim 14. (Previously presented) The in-plane switching type liquid crystal display unit as set forth in claim 10, in which an electric field is created between each of said plural pixel electrodes and a part of said common electrode under application of a potential difference therebetween, and each of said plural pixel electrodes is spaced from said part of said common electrode in a direction parallel to inner surfaces of said substrate structures by a distance ranging

from 2 microns to 15 microns.

Claim 15. (Original) The in-plane switching type liquid crystal display unit as set forth in claim 10, in which said substrate structures are spaced from each other by a first distance ranging from 1.0 micron to 6.0 microns, and each of said plural pixel electrodes and an associated part of said common electrode is spaced from each other in a direction parallel to inner surfaces of said substrate structures by a second distance ranging from 2 microns to 15 microns.

Claim 16. (Original) The in-plane switching type liquid crystal display unit as set forth in claim 10, in which said plural pixel electrodes, parts of said common electrodes respectively overlapped with combinations of said plural pixel electrodes and said parts form in combination plural pixels arranged in a matrix.

Claim 17. (Original) The in-plane switching type liquid crystal display unit as set forth in claim 16, further comprising color filters selectively put in the primary three colors and contained in said plural pixels, respectively.

Claim 18. (Original) The in-plane switching type liquid crystal display unit as set forth in claim 17, in which said plural pixel electrodes and said common electrode are formed on said one of said substrate structures together with data lines and thin film transistors selectively connected between said data lines and said pixel electrodes, and said color filters are formed on

the other of said substrate structures together with a black matrix.

Claim 19. (Currently amended) An in-plane switching type liquid crystal display unit comprising:

a pair of substrate structures comprising at least plural pixel electrodes and a common electrode on one of said substrate structures; and

a liquid crystal layer sandwiched between said substrate structures and having a splay elastic coefficient and a bend elastic coefficient are selected such that, the square root of the product between said splay elastic coefficient and said bend elastic coefficient fall within the range expressed as:

$$5 \text{ pico-newton} < \text{SQRT} < 20 \text{ pico-newton}$$

where SQRT is said square root of the product between said splay elastic coefficient and said bend elastic coefficient for improving a luminance of said in-plane switching type liquid crystal display unit.

Claim 20. (Original) The in-plane switching type liquid crystal display unit as set forth in claim 19, in which the liquid crystal of said liquid crystal layer has a positive anisotropy of dielectric constant.

Claim 21. (Previously presented) The in-plane switching type liquid crystal display unit as set forth in claim 19, in which said liquid crystal further has a twist elastic coefficient, and said

splay elastic coefficient, said bend elastic coefficient and said twist elastic coefficient satisfy an inequality expressed as:

$$0.5 < (\sqrt{K_{11} \times K_{33}} / K_{22}) < 2.0$$

where K_{11} is said splay elastic coefficient, K_{33} is said bend elastic coefficient and K_{22} is said twist elastic coefficient.

Claim 22. (Original) The in-plane switching type liquid crystal display unit as set forth in claim 19, in which said substrate structures are spaced from each other by a distance ranging from 1.0 micron to 6.0 microns.

Claim 23. (Previously presented) The in-plane switching type liquid crystal display unit as set forth in claim 19, in which an electric field is created between each of said plural pixel electrodes and a part of said common electrode under application of a potential difference therebetween, and each of said plural pixel electrodes is spaced from ~~and~~ said part of said common electrode in a direction parallel to inner surfaces of said substrate structures by a distance ranging from 2 microns to 15 microns.

Claim 24. (Original) The in-plane switching type liquid crystal display unit as set forth in claim 19, in which said substrate structures are spaced from each other by a first distance ranging from 1.0 micron to 6.0 microns, and each of said plural pixel electrodes and an associated part of said common electrode is spaced from each other in a direction parallel to inner surfaces of said

substrate structures by a second distance ranging from 2 microns to 15 microns.

Claim 25. (Original) The in-plane switching type liquid crystal display unit as set forth in claim 19, in which said plural pixel electrodes, parts of said common electrode respectively associated with said plural pixel electrodes and pieces of said liquid crystal layer respectively overlapped with combinations of said plural pixel electrodes and said parts form in combination plural pixels arranged in a matrix.

Claim 26. (Original) The in-plane switching type liquid crystal display unit as set forth in claim 25, further comprising color filters selectively put in the primary three colors and contained in said plural pixels, respectively.

Claim 27. (Original) The in-plane switching type liquid crystal display unit as set forth in claim 26, in which said plural pixel electrodes and said common electrode are formed on one of said substrate structures together with data lines and thin film transistors selectively connected between said data lines and said pixel electrodes, and said color filters are formed on the other of said substrate structures together with a black matrix.

Claim 28. (New) A method of providing an in-plane switching type liquid crystal display unit, the method comprising:

providing a pair of substrate structures comprising at least plural pixel electrodes and a

common electrode on one of said substrate structures;

improving a luminance of said in-plane switching type liquid crystal display unit by
selecting a liquid crystal material having a splay elastic coefficient that is equal to or greater than
6 pico-Newtons and less than or equal to 25 pico-Newtons; and

providing said selected liquid crystal material between said substrate structures.

Claim 29. (New) A method of providing an in-plane switching type liquid crystal display unit, the method comprising:

providing a pair of substrate structures comprising at least plural pixel electrodes and a
common electrode on one of the substrate structures;

improving a luminance of said in-plane switching type liquid crystal display unit by
selecting a liquid crystal material having a bend elastic coefficient that is greater than or equal to
5 pico-Newtons and less than or equal to 20 pico-Newtons; and

providing said liquid crystal material between said substrate structures.

Claim 30. (New) A method of providing an in-plane switching type liquid crystal display unit, the method comprising:

providing a pair of substrate structures comprising at least plural pixel electrodes and a
common electrode on one of said substrate structures;

improving a luminance of said in-plane switching type liquid crystal display unit by
selecting a liquid crystal material having a splay elastic coefficient and a bend elastic coefficient

that satisfies the following equation:

5 pico-Newtons < SQRT < 20 pico-Newtons; and

providing said liquid crystal material between said substrate structures.